

## ABSTRACT

A transmission diffraction grating body including a base material being substantially transparent with respect to wavelength  $\lambda_1$  and having a refractive index  $n_0$ ; another base material being substantially transparent with respect to wavelength  $\lambda_1$  and having a refractive index  $n_1$ , which is formed on the base material having a refractive index  $n_0$ ; and a relief diffraction grating formed on the base material having a refractive index  $n_1$ ; wherein the refractive indexes  $n_1$  and  $n_0$  satisfy the relationship:  $n_1 > n_0$ .

5 Thus, the base material having a refractive index  $n_1$  can be formed of a high refractive index material, and when the depth of grating of the diffraction grating is set so that the diffraction grating diffracts the light with wavelength  $\lambda_1$  and does not diffract the light with wavelength  $\lambda_2$ , the depth of grating of the diffraction grating can be made to be shallow, thus preventing

10 the loss of the amount of the light with wavelength  $\lambda_1$ . Furthermore, since base materials each having a different refractive index are bonded to each other to form a diffraction grating body, it is possible to minimize the use amount of the relatively expensive material having a high refractive index.

15 Furthermore, since the most of the diffraction grating body can be formed of a material having a low refractive index, it is possible to lower the height of the diffraction index body.

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